Todd P. Oman et al.

Appln. No.

10/623,783

Page

2

In the Claims:

This listing of claims will replace all prior versions and listings, of claims in the application:

1. (currently amended) A thermally enhanced electronic module, comprising:

a thermally conductive case;

a self-aligning thermally conductive heat sink, wherein the case includes a <u>substantially</u> <u>semi-spherical</u> pivot area with a first shape formed into the case for receiving a first portion of the heat sink, and wherein the first portion of the heat sink has a second shape that is complimentary to the first shape; and

a die with a first surface and a second surface opposite the first surface, wherein the die is mounted to a substrate with the first surface of the die facing the substrate, and wherein the second surface of the die is in thermal contact with the heat sink.

- 2. (original) The module of claim 1, wherein the substrate is a ceramic substrate.
- 3. (original) The module of claim 1, further including:a thermally conductive film located between the die and the heat sink.
- 4. (original) The module of claim 1, further including:

one of a thermally conductive grease and a thermally conductive adhesive located between the case and the heat sink.

- 5. (currently amended) The module of claim 1, wherein the first shape of the pivot area is <u>semi-spherical</u> concave and the second shape of the heat sink is <u>semi-spherical</u> convex.
- 6. (original) The module of claim 1, wherein the die includes at least one of a field effect transistor (FET), an insulated gate bipolar transistor (IGBT), a power flip chip and a power package.

Todd P. Oman et al.

Appln. No.

10/623,783

Page

3

7. (original) The module of claim 1, wherein the substrate is one of a laminate substrate, a ceramic substrate, an aluminum oxide substrate, a silicon nitride substrate and a low temperature co-fired ceramic substrate.

8. (currently amended) A thermally enhanced automotive electronic module, comprising: a thermally conductive metal case;

a self-aligning thermally conductive heat sink, wherein the case includes a <u>substantially</u> <u>semi-spherical</u> pivot area with a first shape formed into the case for receiving a first portion of the heat sink, and wherein the first portion of the heat sink has a second shape that is complimentary to the first shape; and

a die with a first surface and a second surface opposite the first surface, wherein the die is mounted to a substrate with the first surface of the die facing the substrate, and wherein the second surface of the die is in thermal contact with the heat sink.

- 9. (original) The module of claim 8, wherein the substrate is a ceramic substrate.
- 10. (original) The module of claim 8, further including:
 a thermally conductive film located between the die and the heat sink.
- 11. (original) The module of claim 8, further including:

one of a thermally conductive grease and a thermally conductive adhesive located between the case and the heat sink.

- 12. (currently amended) The module of claim 8, wherein the first shape of the pivot area is semi-spherical concave and the second shape of the heat sink is <u>semi-spherical</u> convex.
- 13. (original) The module of claim 8, wherein the die includes at least one of a field effect transistor (FET), an insulated gate bipolar transistor (IGBT), a power flip chip and a power package.

Todd P. Oman et al.

Appln. No.

10/623,783

Page

4

- 14. (original) The module of claim 8, wherein the substrate is one of a laminate substrate, a ceramic substrate, an aluminum oxide substrate, a silicon nitride substrate and a low temperature co-fired ceramic substrate.
- 15. (currently amended) A method for manufacturing a thermally enhanced electronic module, comprising the steps of:

forming a <u>substantially semi-spherical</u> pivot area into an inner surface of a thermally conductive case;

positioning a substrate including a die within the thermally conductive case, wherein the die includes a first surface and a second surface opposite the first surface, and wherein the die is mounted to the substrate with the first surface of the die facing the substrate; and

positioning a portion of a self-aligning thermally conductive heat sink into the pivot area and in thermal contact with the second surface of the die and the case.

- 16. (original) The method of claim 15, further including the step of:

 providing a thermally conductive film between the die and the heat sink.
- 17. (original) The method of claim 15, further including the step of:

 providing one of a thermally conductive grease and a thermally conductive adhesive between the case and the heat sink.
- 18. (currently amended) The method of claim 15, wherein a shape of the <u>substantially</u> <u>semi-spherical</u> pivot area is concave and a shape of the heat sink that positioned in the <u>substantially semi-spherical</u> pivot area is convex.
- 19. (original) The method of claim 15, wherein the die includes at least one of a field effect transistor (FET), an insulated gate bipolar transistor (IGBT), a power flip chip and a power package.

Todd P. Oman et al.

Appln. No.

10/623,783

Page

5

20. (original) The method of claim 15, wherein the substrate is one of a laminate substrate, a ceramic substrate, an aluminum oxide substrate, a silicon nitride substrate and a low temperature co-fired ceramic substrate.

- 21. (new) The module of claim 1 further comprising an elastomer member disposed between the substrate and the thermally conductive case.
- 22. (new) The module of claim 8 further comprising an elastomer member disposed between the substrate and the thermally conductive metal case.
- 23. (new) The method of claim 15 further comprising the step of positioning an elastomer member between the substrate and the thermally conductive case.